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Serial No. 10/627,734

OKI.557

Amendment dated November 9, 2004

REMARKS

Claims 1-9 are pending in the present application. Claims 1-9 have been amended.

Priority Under 35 U.S.C. 119

Enclosed is a copy of a Claim of Priority Letter dated March 22, 2004, filed in connection with the present application. Also enclosed is a dated, stamped postcard receipt, provided as evidence that the Claim of Priority Letter has been received by the U.S. Patent Office. **The Examiner is respectfully requested to acknowledge receipt of the certified copy of the priority document, and to confirm that the Claim of Priority Under 35 U.S.C. 119 is complete.**

Claim Rejections-35 U.S.C. 103

Claims 1-7 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Lin et al. reference (U.S. Patent Application Publication No. 2002/0090745). This rejection is respectfully traversed for the following reasons.

The method for estimating remaining film thickness distribution of a surface protection film of claim 1 includes in combination "generating a reduced region on each of the mask patterns by removing a predetermined width from the mask pattern along an edge of the mask pattern; "segmentalizing the one-chip mask region into

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predetermined segmentalized regions to generate segmentalized regions and to acquire an area ratio of all reduced regions with respect to each of the segmentalized regions, all of the reduced regions occupying a region that includes the segmentalized region at a fixed position and has a same size and shape as those of the one-chip mask region"; and "acquiring remaining film thickness distribution in the one-chip mask region based on the area ratio". Applicant respectfully submits that the Lin et al. reference as relied upon by the Examiner does not disclose these features.

In the Office Action dated June 9, 2004, the Examiner has alleged that the partial etching of deposited oxide as described in paragraph [0021] of the Lin et al. reference with respect to Figs. 2 and 3 "corresponds to the step of reducing the area of regions of the pattern, of the deposited layer", of the claims. The Examiner has further alleged that "The portions that are etched out of the dielectric prior to performing CMP corresponds to the patterning of a mask". Applicant respectfully disagrees for the following reasons.

Applicant respectfully submits that HDP layer 22b as shown in Fig. 3 of the Lin et al. reference is not a mask, and that the Lin et al. reference therefore does not disclose or even remotely suggest "generating a reduced region on each of the mask patterns by removing a predetermined width from the mask pattern along an edge of the mask pattern", as would be necessary to meet the features of claim 1.

Particularly, claim 1 features etching using a patterning mask that has a mask pattern for producing an activation region to form a device isolation trench so as to

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create the activation region, whereby an insulating film is provided over the activation region to fill the device isolation trench. Claim 1 therefore features a patterning mask that has a mask pattern, and in addition thereto features an insulating film. In contrast, one of ordinary skill would readily understand that HDP layer 22b in Fig. 3 of the Lin et al. reference is an insulating film particularly described as a dielectric, not a patterning mask that has a mask pattern. This would appear to be especially clear, since the Examiner has acknowledged that the Lin et al. reference is silent with respect to a mask.

The Examiner has asserted that HDP layer 22b of the Lin et al. reference can be interpreted as a mask, because HDP layer 22b is a deposited layer. This position is not entirely understood, because this would seem to imply that any deposited layer in general, no matter how disposed or for what reason, can be a mask. Regardless, it is unclear how one of ordinary skill would interpret HDP layer 22b (which is a dielectric that fills trenches 12) in Fig. 3 of the Lin et al. reference as a mask layer. It is unclear how one of ordinary skill would have found it obvious to generate a reduced region on a mask pattern of a patterning mask in view of the Lin et al. reference, which teaches etching sub-areas ODR in HDP dielectric layer 22b. Accordingly, Applicant respectfully submits that the method for estimating remaining film thickness distribution of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner, and that this rejection of claims 1, 2 and 4-9 is improper for at least these reasons.

With further regard to this rejection, the Examiner has acknowledged that the Lin

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et al. reference is silent with respect to the division of the substrate into segments. The Examiner has however alleged that it would have been obvious to one of ordinary skill in the art that in the Lin et al. reference "the wafer is subdivided into segments by the process of isolating regions with STI because the STI divide the wafer into areas which are isolated from each other".

Applicant respectfully emphasizes that the method for estimating remaining film thickness distribution of claim 1 includes in combination "segmentalizing the one-chip mask region into predetermined segmentalized regions...". Claim 1 does not feature "division of the substrate into segments", as apparently asserted by the Examiner. It would thus appear that the Examiner has misconstrued claim scope. Regardless, Applicant respectfully submits that the Lin et al. reference does not segmentalize a one-chip mask region of a patterning mask. Accordingly, Applicant respectfully submits that the method for estimating remaining film thickness distribution of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner, and that this rejection of claims 1, 2 and 4-9 is improper for at least these additional reasons.

Applicant also respectfully submits that the method for estimating remaining film thickness distribution of claim 3 would not have been obvious in view of the prior art as relied upon by the Examiner for at least somewhat similar reasons as set forth above. Particularly, the Lin et al. reference does not disclose "generating a reduced region for each of the mask patterns by removing a predetermined width from each mask pattern along an edge of the mask pattern". Moreover, the Lin et al. reference does not

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disclose segmentalizing a one-chip mask region of a patterning mask into predetermined segmentalized regions. Applicant therefore respectfully submits that the method for estimating remaining film thickness distribution of claim 3 would not have been obvious in view of the prior art as relied upon by the Examiner, and that this rejection of claims 3-9 is improper for at least these reasons.

With further regard to claim 3, the method for estimating remaining film thickness distribution further includes in combination "generating a frame-shaped region by removing, from the mask pattern, a regional portion that overlaps the reduced region corresponding to the mask pattern". The Lin et al. reference as relied upon by the Examiner does not disclose or even remotely disclose these features. Particularly, the Examiner has not addressed how the Lin et al. reference may be interpreted as disclosing these features. Applicant therefore respectfully submits that the method for estimating remaining film thickness distribution of claim 3 would not have been obvious in view of the prior art as relied upon by the Examiner, and that this rejection of claims 3-9 is improper for at least these additional reasons.

Claim 3 has been rejected under 35 U.S.C. 103(a) as being unpatentable over the Takahashi reference (U.S. Patent No. 5,948,573). This rejection is respectfully traversed for the following reasons.

In the Office Action dated June 9, 2004, the Examiner has alleged that "There is also a step which corresponds to the obtaining reduced regions (col. 23, lines 5-15) in which the thickness of the layer is related to the width of the deposited layer. The

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reduced region is given the same area as the active layer (Fig. 13 shows W and W_0)...". However, as described beginning in column 23, line 10 of the Takahashi reference with respect to Fig. 13, when the second layer is deposited by a conformal CVD method, the width W of the projected portion of the second layer is larger than the width W_0 of the pattern formed in the first layer. In Fig. 13, expanded regions of the second layer are indicated by slanted lines.

Applicant respectfully submits that in view of the above noted description, it is not clear how the Takahashi reference as specifically relied upon by the Examiner may be interpreted as disclosing "generating a reduced region for each of the mask patterns by removing a predetermined width from each mask pattern along an edge of the mask pattern", as would be necessary to meet the features of claim 3. Particularly, this portion of the Takahashi reference describes enlarging a second layer, not reducing a mask pattern of a patterning mask. Applicant therefore respectfully submits that the method for estimating remaining film thickness distribution of claim 3 would not have been obvious in view of the Takahashi reference as relied upon by the Examiner, and that this rejection is improper for at least these reasons.

With further regard to this rejection, Applicant respectfully submits that the Takahashi reference as relied upon by the Examiner does not disclose "generating a frame-shaped region by removing, from the mask pattern, a regional portion that overlaps the reduced region corresponding to the mask pattern". The Examiner has not particularly identified how the Takahashi reference may be interpreted as disclosing

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these features. Applicant respectfully submits that the method for estimating remaining film thickness distribution of claim 3 would not have been obvious in view of the Takahashi reference as relied upon by the Examiner, and that this rejection of claim 3 is therefore improper for at least these additional reasons.

Claims 8 and 9

The Examiner is respectfully requested to acknowledge that claims 8 and 9 include allowable subject matter, since claims 8 and 9 have not been rejected based upon prior art.

Conclusion

The claims have been amended merely to improve form, rather than to further distinguish over the relied upon prior art. Accordingly, the corresponding amendments should not be construed as narrowing scope within the meaning of *Festo*.

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicant hereby

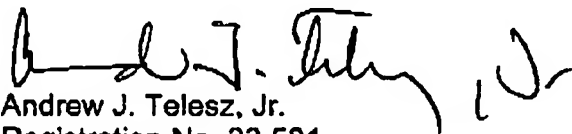
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petitions for an extension of two (2) months to November 9, 2004, for the period in which to file a response to the outstanding Office Action. The required fee of \$430.00 should be charged to Deposit Account No. 50-0238.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

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Enclosures: Copy of Claim of Priority Letter
Copy of dated, stamped postcard receipt

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